

WHAT IS CLAIMED IS:

1. A transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, said component having a nitriding layer at a surface layer, and an austenite grain with a grain size number falling within a range  
5 exceeding 10.

2. The transmission component according to claim 1, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a tapered roller bearing.

3. The transmission component according to claim 1, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a needle roller bearing.

4. The transmission component according to claim 1, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a ball bearing.

5. A transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, said component having a nitriding layer at a surface layer, and a fracture stress value of at least 2650 MPa.

6. The transmission component according to claim 5, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a tapered roller bearing.

7. The transmission component according to claim 5, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a needle roller bearing.

8. The transmission component according to claim 5, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a ball bearing.

9. A transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, said component having a nitriding layer at a surface layer, and a hydrogen content of at most 0.5 ppm.

10. The transmission component according to claim 9, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a tapered roller bearing.

11. The transmission component according to claim 9, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a needle roller bearing.

12. The transmission component according to claim 9, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a ball bearing.

13. A method of manufacturing a transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, wherein

5        said component is formed at least by carbonitriding steel for a bearing's component at a temperature higher than an  $A_1$  transformation point and then cooling the steel to a temperature lower than the  $A_1$  transformation point and subsequently reheating the steel to a range of temperature of no less than the  $A_1$  transformation point and less than said temperature applied to carbo-nitride the steel, and quenching the steel.

14.    The method of manufacturing the transmission component according to claim 13, wherein said range of temperature at which the quenching begins is  $790^{\circ}\text{C}$  to  $830^{\circ}\text{C}$ .

15.    A tapered roller bearing having an inner ring, an outer ring, and a tapered roller, wherein at least any one of said inner ring, said outer ring and said tapered roller has a nitriding layer and an austenite grain with a grain size number falling within a range exceeding 10.